

Letters

Calculating insulation's payback

Regarding "**Analyzing insulation payback**," July issue, page 12, I would like to offer the following comments. In terms of the basic cost calculations, I tend to agree with the **NRCA** study that the simple payback for roof insulation may be in the 12- to 13-year range when you're evaluating an incremental increase beyond R-20. However, I would suggest this payback may be viewed as financially justifiable if a roof system is considered a capital good subject to return on investment analysis rather than a simple payback calculation.

As a capital good, a new roof system should be treated as a long-term asset that may be leveraged through a variety of financial mechanisms. It can be used as collateral for short-term commercial paper as well as a long-term commercial mortgage. As a result, the financial return generated by an increased amount of insulation may best be measured by comparing the annual energy cost savings against the annual cost of money required to finance the additional insulation.

Currently, high-quality asset-based commercial paper is available at an annual rate less than 3 percent while commercial mortgage rates hover around 4 percent or less. So if a building owner is paying 4 percent or less for the money to finance a new roof system, the 12- to 13-year payback period generates an annual financial return rate of 7.5 to 8.1 percent—around twice as much as the cost of money needed to finance the energy savings. As a result, for every year the roof remains in place, it generates incremental energy cost savings at nearly twice today's cost of money for the marginal amount of insulation financed.

And that leads to a second important aspect of the **NRCA** study, which involves the useful service life of a roof system and underlying roof insulation. Although I am familiar with **The Roofing Industry Alliance for Progress'** study that estimated the average roof service life to be 17.4 years, I would submit using this number in a financial analysis of roof insulation may result in several critical miscalculations.

First, the Alliance study provides a historical rather than forward-looking estimate. As a result, it may not be an accurate indicator of future service life just as the morbidity rate for people who have died may be a poor indicator of the life expectancy for babies who have just been born. In fact, the 17.4 year number only may be accurate if we also assume roof systems will continue to be installed the same way tomorrow as they were yesterday with little or no improvement in product technology or installation quality. However, such an assumption runs counter to many research studies published about the increasing longevity of commercial roof systems as well as the steady increase in commercial roof warranty periods—from as little as five years in the 1970s up to 30 years or more by the beginning of the current century.

But even if we assume a new roof will last only 17.4 years, the implied assumption that the underlying thermal insulation also will last only 17.4 years may be subject to question. As a general rule, existing roof insulation is torn off only when it is saturated with moisture or otherwise damaged. In fact, my experience from more than 30 years in the roofing industry and as signatory to more than 2 billion square feet of roof system warranties suggests a substantial amount of thermal roof insulation remains in place when a new roof covering is installed.

When you take the available energy savings above and beyond the cost of money and combine it with the potential for a significant extension in insulation service life, you end up with a much more favorable value proposition. In this new scenario, whenever a building owner chooses a high-quality roof system installed by a professional contractor and if the roof system is installed in a way

to allow the thermal insulation to be protected during a future reroofing project, the building owner may enjoy an annual return in energy savings at almost twice the cost of money for a period of 20, 30 or even 40 years.

I must admit that as a semiretired member of the industry, I have not been involved with the sales of roof systems on a daily basis for a few years. But I would suggest the value proposition I outline might be more effective at generating additional sales and customer satisfaction as opposed to advising owners the level of roof insulation required by building codes is simply a bad investment.

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Mark S. Graham, NRCA's vice president of technical services, responds:

Thank you for your comments. Enjoy your retirement.

Comments

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